

Serial No. 09/913,625  
Docket No. SHIG C11119  
Amendment D under Rule 116

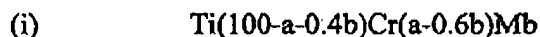
**AMENDMENTS TO THE CLAIMS:**

Please cancel claim 34, without prejudice. Please amend claim 22, as follows:

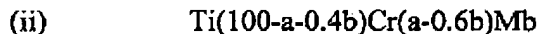
**Claims 1-21 (previously canceled)**

**Claim 22 (currently amended):** A process for producing a hydrogen storage metal alloy having a main phase with body-centered cubic structure wherein the body-centered cubic structure phase enables adsorption and desorption of hydrogen, comprising the steps of:

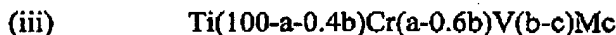
(1) providing a starting mixture which has a composition of the following general composition formula:



wherein M is vanadium (V), provided that  $20 \leq a \text{ (at\%)} \leq 80$ , and  $0 < b \text{ (at\%)} < 10$ ; or



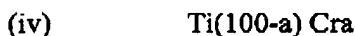
wherein M is at least a member selected from molybdenum (Mo) and tungsten (W), wherein  $20 \leq a \text{ (at\%)} \leq 80$ ,  $0 < b \text{ (at\%)} < 5$ , and when M is W said metal alloy has a hydrogen storage capacity of at least 2.6 mass % or more; or



wherein M is at least a member selected from molybdenum (Mo) and tungsten (W), wherein

$[[20 \leq a \text{ (at\%)} \leq 80, 0 \leq b \text{ (at\%)} \leq 10, \text{ and } 0 \leq c \text{ (at\%)} < 5,]]$

$20 \leq a \text{ (at\%)} \leq 80, 0 < b \text{ (at\%)} \leq 10, \text{ and } 0 < c \text{ (at\%)} < 5$ ; or



wherein  $20 \leq a \text{ (at\%)} \leq 80$ ;

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- (2) repeatedly melting and solidifying the starting mixture to form a heated homogeneous alloy;
- (3) maintaining the heated homogeneous alloy at a temperature of at least 1400°C within a range just below the melting point of the alloy for a predetermined time of from 1 minute to 2 hours; and
- (4) rapidly cooling the alloy from step (3) to 0°C by quenching in iced water.

**Claim 23 (previously presented):** The process of Claim 22 wherein said melting and solidifying are carried out repeatedly for predetermined times in step (2).

**Claims 24-25 (previously canceled)**

**Claim 26 (previously presented):** The process of Claim 22 wherein the starting mixture contains an additional element X admixed at its atom % concentration,  $d$  (at%), ranging within  $0 \leq d \text{ (at\%)} \leq 20$  and includes at least one or more other elements selected from the group consisting of Al, Ge, Ga, Si, Au and Pt.

**Claim 27 (previously presented):** The process of Claim 22 wherein the starting mixture contains an additional element T admixed at its atom % concentration,  $e$  (at%), ranging within  $0 \leq e \text{ (at\%)} \leq 10$  and includes at least one or more other elements selected from the group consisting of Nb, Ta, Mn, Fe, Al, B, C, Co, Cu, Ga, Ge, a lanthanoid metal, N, Ni, P, and Si.

**Claim 28 (previously presented):** The process of Claim 26 wherein the starting mixture contains an additional element T admixed at its atom % concentration,  $e$  (at%), ranging within  $0 \leq e \text{ (at\%)} \leq 10$  and includes at least one or more other elements selected from the

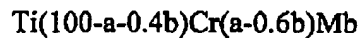
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group consisting of Nb, Ta, Mn, Fe, Al, B, C, Co, Cu, Ga, Ge, a lanthanoid metal, N, Ni, P, and Si.

**Claim 29 (previously presented):** The process of Claim 22 wherein the starting mixture has a composition of the following general composition formula:



wherein M is vanadium (V), provided that  $20 \leq a \text{ (at\%)} \leq 80$ , and  $0 < b \text{ (at\%)} < 10$ .

**Claim 30 (previously presented):** The process of Claim 29 wherein a level of the constituent element V contained in the mixture is within a range of  $6 \pm 2 \text{ at \%}$ .

**Claim 31 (previously presented):** The process of Claim 22 wherein the starting mixture has a composition of the following general composition formula:



wherein M is at least a member selected from molybdenum (Mo) and tungsten (W), wherein  $20 \leq a \text{ (at\%)} \leq 80$ ,  $0 < b \text{ (at\%)} < 5$ , and when M is W said resulting metal alloy has the hydrogen storage capacity of at least 2.6 mass % or more.

**Claim 32 (previously presented):** The process of Claim 31 wherein a level each of the constituent element Mo and/or W contained in the starting mixture is within a range of  $3 \pm 1.5 \text{ at \%}$ .

**Claim 33 (previously canceled)**

**Claim 34 (canceled)**

**Claims 35-36 (previously canceled)**

**Claim 37 (previously presented):** The process of Claim 22 wherein the predetermined time range in step (3) is from 1 minute to 1.9 hours.

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**Claim 38 (previously presented):** The process of Claim 22 wherein the predetermined time range in step (3) is from 1 minute to 100 minutes.

**Claim 39 (previously presented):** The process of Claim 22 wherein the predetermined time range in step (3) is from 1 minute to 1 hour.

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